

AMENDMENTS TO THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A process for forming a three-dimensional article by stereolithography, said process comprising the steps:

(a) coating a thin layer of a liquid radiation-curable composition onto a surface said composition including at least one filler comprising silica-type nano-particles suspended in the radiation-curable composition, wherein said nano-particles are spherical, have a particle size distribution of 10 to 50 nanometers, are not agglomerated, and are surface modified;

(b) exposing said thin layer imagewise to actinic radiation to form an imaged cross-section, wherein the radiation is of sufficient intensity to cause substantial curing of the thin layer in the exposed areas;

(c) coating a thin layer of the composition onto the previously exposed imaged cross-section;

(d) exposing said thin layer from step (c) imagewise to actinic radiation to form an additional imaged cross-section, wherein the radiation is of sufficient intensity to cause substantial curing of the thin layer in the exposed areas and to cause adhesion to the previously exposed imaged cross-section;

(e) repeating steps (c) and (d) a sufficient number of times in order to build up the three-dimensional article.

2. (Previously amended) The process of claim 1 wherein the radiation-curable composition includes:

(a) at least one free-radical polymerizing organic substance;

(b) at least one free-radical polymerization initiator;

(c) at least one filler comprising silica-type nanoparticles suspended in the radiation-curable composition;

(d) optionally, at least one cationically polymerizing organic substance;

- (e) optionally, at least one cationic polymerization initiator;
- (f) optionally, at least one hydroxyl-functional compound; and
- (g) optionally, at least one type of microparticle filler.

3. (Previously amended) The process of claim 2 wherein component (a) is at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate.

4. (Original) The process of claim 2 wherein component (a) is at least one (meth)acrylate comprises a mono-, di- or tri-functional aliphatic (meth)acrylate compound.

5. (Original) The process of claim 2 wherein component (a) comprises a mono-functional aliphatic (meth)acrylate compound.

6. (Original) The process of claim 2 wherein component (a) comprises a di-functional aliphatic (meth)acrylate compound or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic, or aromatic (meth)acrylate.

7. (Original) The process of claim 2 wherein component (a) comprises a urethane (meth)acrylate.

8. (Original) The process of claim 2 wherein component (a) constitutes from about 5% to about 70% by weight of the total liquid radiation-curable composition.

9. (Original) The process of claim 2 wherein component (b) is 1-hydroxycyclohexyl phenyl ketone or 2,4,6-trimethylbenzoyldiphenylphosphine oxide or a mixture of both.

10. (Original) The process of claim 2 wherein component (b) constitutes from about 0.1 to about 7% by weight of the total liquid radiation-curable composition.

11. (Cancelled)

12. (Original) The process of claim 2 wherein component (c) constitutes from about 15% to about 60% by weight to the total resin composition.

13. (Original) The process of claim 2 wherein component (d) is present and comprises 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate.

14. (Original) The process of claim 2 wherein component (d) is present and comprises trimethylol propane triglycidylether.

15. (Original) The process of claim 2 wherein component (d) is present and constitutes from about 10% to about 40% by weight of the total liquid radiation-curable composition.

16. (Original) The process of claim 2 wherein component (e) is present and is triarylsulfonium hexafluoroantimonate.

17. (Original) The process of claim 2 wherein component (e) is present and constitutes from about 0.1 to about 8% by weight of the total liquid radiation-curable composition.

18. (Original) The process of claim 2 wherein additionally comprising at least one (f) hydroxyl-functional compound.

19. (Original) The process of claim 18 wherein component (f) is trimethylol propane.

20. (Original) The process of claim 2 wherein component (f) is present and constitutes about 1% to about 10% by weight of the total liquid radiation-curable composition.

21. (Cancelled)

22. (Withdrawn) A solid three-dimensional article produced by the process of claim 1.

23. (Withdrawn) A liquid radiation-curable composition useful for the production of three dimensional articles by stereolithography that comprises:

- (a) at least one free-radical polymerizing organic substance;
- (b) at least one free-radical polymerization initiator;
- (c) at least one filler comprising silica-type nanoparticles suspended in the radiation-curable composition;
- (d) at least one cationically polymerizing organic substance;
- (e) at least one cationic polymerization initiator;
- (f) optionally, at least one hydroxyl-functional compound; and
- (g) optionally, at least one type of microparticle filler.

24. (Withdrawn) The composition of claim 23 wherein component (a) is at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate.

25. (Withdrawn) The composition of claim 23 wherein component (a) comprises a mono-, di- or tri-functional aliphatic (meth)acrylate compound.

26. (Withdrawn) The composition of claim 23 wherein component (a) comprises a mono-functional aliphatic (meth)acrylate compound.

27. (Withdrawn) The composition of claim 23 wherein component (a) comprises a di-functional aliphatic (meth)acrylate compound or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic, or aromatic (meth)acrylate.

28. (Withdrawn) The composition of claim 23 wherein component (a) comprises a urethane (meth)acrylate.

29. (Withdrawn) The composition of claim 23 wherein component (a) constitutes from about 5% to about 50% by weight of the total liquid radiation-curable composition.

30. (Withdrawn) The composition of claim 23 wherein component (b) is 1-hydroxycyclohexyl phenyl ketone or 2,4,6-trimethylbenzoyldiphenylphosphine oxide or a mixture of both.

31. (Withdrawn) The composition of claim 23 wherein component (b) constitutes from about 0.1 to about 7% by weight of the total liquid radiation-curable composition.

32. (Withdrawn) The composition of claim 23 wherein component (c) nanoparticles are spherical, have a particle size distribution of 10 to 50 nanometers, are not agglomerated, and are surface modified.

33. (Withdrawn) The composition of claim 23 wherein component (c) constitutes from about 15% to about 60% by weight to the total resin composition.

34. (Withdrawn) The composition of claim 23 wherein component (d) comprises 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate.

35. (Withdrawn) The composition of claim 23 wherein component (d) comprises trimethylol propane triglycidylether.

36. (Withdrawn) The composition of claim 23 wherein component (d) constitutes from about 10% to about 40% by weight of the total liquid radiation-curable composition.

37. (Withdrawn) The composition of claim 23 wherein component (e) is triarylsulfonium hexafluoroantimonate.

38. (Withdrawn) The composition of claim 23 wherein component (e) constitutes from about 0.1 to about 8% by weight of the total liquid radiation-curable composition.

39. (Withdrawn) The composition of claim 23 wherein additionally comprising at least one (f) hydroxyl-functional compound

40. (Withdrawn) The composition of claim 23 wherein component (f) is trimethylol propane.

41. (Withdrawn) The composition of claim 23 wherein component (f) is present from about 1% to about 10% by weight of the total liquid radiation-curable composition.

42. (Withdrawn) The composition of claim 23 wherein the composition comprises:

(a) at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate;

(b) at least one free-radical polymerization initiator;

- (c) at least one filler comprising silica nanoparticles suspended in the composition;
- (d) at least one cationically polymerizing organic substance selected from the group consisting of 3,4-epoxycyclohexylmethyl-3',4'-epoxy-cyclohexane carboxylate, trimethylol propane triglycidylether and mixtures thereof;
- (e) at least one cationic polymerization initiator;
- (f) at least one hydroxyl-functional compound; and
- (g) at least one microparticle filler.